

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/730,532
Applicants: Albert et al.
Confirmation No.: 3008
Filed: December 8, 2003
Group Art Unit: 2629
Examiner: Mengistu, Amare

Attorney Docket No.: INK-055C1
Customer No.: 26245

DECLARATION UNDER 37 CFR 1.131

I, Holly G. Gates, of 189 Summer Street, Apartment No. 2, Somerville MA 02143, do hereby declare:

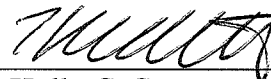
1. I am one of the inventors of the above application.
2. I graduated with a Bachelor of Science in Electrical Engineering from Massachusetts Institute of Technology (MIT) in 1999, and worked for the MIT Media Lab and Zond Systems, Inc. prior to my employment at E Ink. Since May 1998, I have been employed by E Ink Corporation as an electrical engineer (most recently as Senior Hardware Engineer) working on the development of encapsulated electrophoretic displays.
3. Together with my co-inventors Jonathan D. Albert and Russell J. Wilcox, I conceived and reduced to practice the invention forming the subject matter of the above application prior to September 11, 1998.
4. The document attached hereto is a copy of pages from one of my laboratory notebooks; all the enclosed pages were written prior to September 11, 1998, but certain dates have been redacted from the enclosed copy.
5. The attached document (see especially the drawing on the first page) shows a prototype centrally controlled display system comprising a controller (the pager), a data receiver in communication with the controller (namely the board labeled "CPU" in the drawing, which has a serial link to the pager), and a display in electrical communication with the data receiver (the items labeled "letters" in the drawing).

6. Although it may not be apparent from the attached document the "letters" shown in the drawing were in fact prototype electrophoretic displays substantially as described in International Patent Application WO 00/05704, which is derived from U.S. Provisional Application Serial No. 60/093,689, filed July 22, 1998, essentially contemporary with the attached document. As shown in Figure 7 of WO 00/05704, and as describes at page 16, lines 13-19 thereof, each of the "letters" comprised a number of microcapsules 76 in a binder 77 sandwiched between two electrodes 74, 79, which were in turn sandwiched between two substrates, 72, 78. The microcapsules contained particles in a dyed fluid so that, depending upon the direction of the electric field between the electrodes 74, 79, the particles would either approach the front electrode (the upper electrode in Figure 7) and the pixel would display the color of the particles, or the particles would approach the back electrode, and the pixel would display the contrasting color of the dyed fluid. The displays were referred to as "letters" because, as shown for example in Figures 1 and 2 of WO 00/05704, there were multiple independently controllable rear electrodes in each display, so that by varying the voltages applied to the individual rear electrodes, one letter could be displayed on each display.

The undersigned declare further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful statements may jeopardize the validity of the application or any patent issuing thereon.

10/10/2006

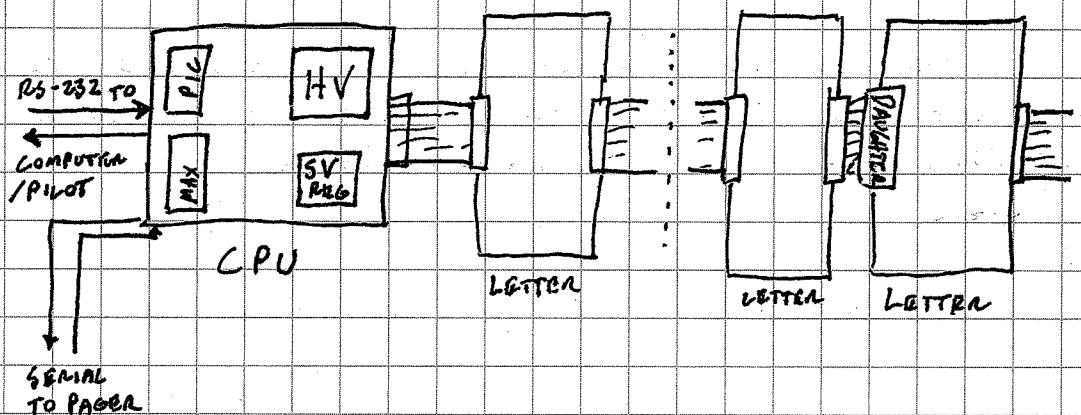
Date



Holly G. Gates

CONTINUED WORK ON 4 LAYER MOSAIC BOARD. MORE QUOTES FAXED IN; AVERAGE PRICE FOR MOSAIC BOARD IS $\sim \$1K$, SOME AS LOW AS $\$400$. VIA HOLES FILLED IN TWO LAYER MOSAIC WITH SOLDER PASTE + IRON REFLOW. FRONT SURFACE PLANARIZED BY SANDING.

MORE WORK ON 4 LAYER MOSAIC. RE-QUOTES INCLUDING BLIND VIAS. DISCUSSED REVISION OF MOSAIC ARCHITECTURE WITH JD. COST OF 4 LAYER BLIND VIA BOARD IS PROHIBITIVE, SO WE WANT TO MAKE THE LETTER A 2-SIDED WITH 577, HEADERS, AND SHUNT CAPS. PUT HV SUPPLY AND SIGNAL BOOSTERS ON A DAUGHTER CARD WHICH CAN BE PUT IN-LINE BETWEEN SUCCESSIVE LETTERS IN A SIGN.



MEASURED CURRENT DRAW OF 577 OFF 90V SUPPLY ON HP MULTIMETER $\sim 40\mu A$ MAX ON CREDIT CARD DEMO #1. CURRENT DRAW OF 577 OFF LOGIC SUPPLY ON CC DEMO #1 MEASURED ON HP MULTI = $1.5\mu A$.

- PROGRESSSSSSS.... FOR BOARD MEETING -

TOTAL CC DEMO #1 BOARD DRAW @ 3V = $\sim 12\mu A$

PIC DRAW $\sim 500\mu A$ HV503 $\sim 12\mu A$ ← !

577 DRAW (LOGIC) $\sim .5\mu A$

577 DRAW (HV) $\sim 10\mu A$

- PLAN FOR PILOT PRODUCTION OF BOARDS

Continued on Page _____

Read and Understood By _____

Signed _____

Date _____

Signed _____

Date _____

FINISH CPU BOARD, SEND OUT FOR MULTIPLE QUOTES

TOUCH UP MOSAIC BOARD, QUOTES FROM MORE BOARD HOUSES. SIERRA COMES IN AT \$800 FOR 15 MOSAIC BOARDS AND 5 CPU BOARDS, SEND FILES TO THEM, COD.

ORDER MORE HV577, HV803, HT044 CHIPS FROM ALL-AMERICAN, SET UP APPOINTMENT FOR WEDNESDAY WITH PACE RIPS AND WITH FLEXTRONIC.

SEND QUOTE FOR MOSAIC BOARD TO GC ARND TO SEE HOW MUCH FLEX COSTS. BEGAN LOOKING AT HV803 CIRCUIT WITH AN EYE TOWARD

OPTIMIZATION AND LOWERING ITS CURRENT CONSUMPTION. 8XX AP NOTE RECOMMENDS USING LARGER INDUCTOR (~1mH) AND LOWER SWITCH FREQUENCY FOR LOW POWER APPLICATIONS. ORDERED SMT INDUCTORS AND SEE PROMS FROM DIGIKEY. GOT SAMPLES OF CR2032 COIN CELL HOLDERS FOR CREDIT 2 DEMO. MOSAIC PROJECT NAME WILL BE "DAISYMOS"

BOARDS IN! STUFFED! SOT-23 DIODE FOOTPRINT IS BACKWARDS, FIX IS TO CLIP EXTRA LEAD OFF AND ROTATE PACKAGE 180°. HV803 PUTTING OUT ~95V, TRIED RESISTORS OF 100K, 330K, 560K, 820K NO SIGNIFICANT CHANGE IN VOLTAGE.

FOUND OUT

FLEXTRONIC-SALES@DIAL.PIPEX.COM ATTN PAUL THOMAS

GOT QUOTES ON DP13 CABLES 1.5" LONG AND CORRESPONDING HEADERS.

CABLE 1.64 IN 100K

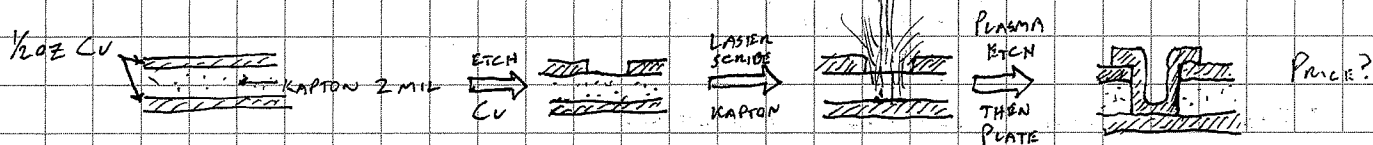
SO .97 / BETTER = COST OF CABLE

HEADER .33 IN 100K

CONTACT FOR CABLES: TERRY AT PAUL KAPLAN FAX (714) 751-6003

PH (714) 556-7007

SIGMA CIRCUITS VICTOR LLANES SAYS HE CAN DO SINGLE LAYER BLIND VIAS IN FLEX (408) 654-5800 V-LLANES@FX.SIGMACIR.COM



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Signed

Date

Signed

Date

PROJECT _____

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MEASURED 10 CHARACTER SIGN AT:

LOGIC DRAW TO SIGN: 0-1mA

HV DRAW TO SIGN: 10-1500mA

BAT CURRENT TO 803: 10.5mA (@9V)

TRIED TO INSERT A 1000mH INDUCTOR IN HV803 CIRCUIT, AND A 100K
FIXED RESISTOR IN SERIES WITH A 1M Ω POT. VARYING POT BRINGS OUTPUT
VOLTAGE FROM 90 TO 95 AND CURRENT FROM 9.5 TO 7.8mA. LOWEST
VOLTAGE CORRESPONDS TO LOWEST CURRENT DRAW. WITH 1M Ω /2M Ω $V=89.6$
AND $I \approx 7.2\text{mA}$. 2mH/2.5M Ω $V=89.1$ $I \approx 7.1\text{mA}$ EXTRA INDUCTOR
PROBABLY NOT WORTH IT.

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Read and Understood By _____

Signed _____

Date _____

Signed _____

Date _____